UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,163	09/15/2003	Steven M. Bennett	42P15752	2836

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EXAMINER
TO, JENNIFER N

ART UNIT	PAPER NUMBER
2195	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
	10/663,163	BENNETT ET AL.
Office Action Summary	Examiner	Art Unit	
	JENNIFER N. TO	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *07 April 2010*.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1,2,5-9,11-15,19,22,23,26,30,31,33-35,41,43,44,50,51,53 and 56* is/are rejected.

7) ☒ Claim(s) *16,17,24,25,37-39,45 and 46* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some *   c) ☐ None of:

         1. ☐ Certified copies of the priority documents have been received.

         2. ☐ Certified copies of the priority documents have been received in Application No. _____.

         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1,2,5-9,11-17,19,22-26,30,31,33-35,37-39,41,43-46,50,51,53 and 56.

DETAILED ACTION

1.   Claims 1-2, 5-9, 11-17, 19, 22-26, 30-31, 33-35, 37-39, 41, 43-46, 50-51, 53, and

56 are pending for examination.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-2, 5-9, 11-15, 19, 22-23, 26, 30-31, 33-35, 41, 43-44, 50-51, 53, and 56

are rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson et al

(hereafter Robinson) (U.S. Patent No. 5522075), and in view of Shorter (U.S. Patent

No. 5063500).

4.   Robinson and Shorter were cited in the previous office action.

5.   As per claim 1, Robinson teaches the invention substantially as claim including a

method comprising:

receiving one of a plurality of types of virtual machine entry instructions executed

by a virtual machine monitor (VMM) (col. 5, line 21;col. 10, lines 15-59; col. 11, lines 55-

60; col. 12, lines 24-25; 34-60);

identifying based on whether the instruction is a VM launch or a VM resume instruction, that a transition from the VMM to one or more virtual machines (VMs) is about to occur (col. 5, lines 21-27; col. 10, lines 15-59; col. 11, lines 55-60; col. 12, lines 34-60); and

utilizing processor-managed resources associated with the one or more VMs based the transition (col. 10, line 54 through col. 11, line 39).

6.   Robinson did not specifically teach that the transition is an initial transition.

7.   However, Shorter teaches that the transition from the VMM to one or more VMs is an initial transition (col. 14, lines 47-66).

8.   It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Robinson and Shorter's system because both systems suggest transition from a VMM to one or more VMs is occurred in response to a instruction and Shorter also suggested that the transition is an initial transition would improve the integrity of Robinson's system by avoiding the assignment of a VM from the pool to a conversation request involving a program thread that is dependent on the successful execution of a previous thread (col. 5, lines 10-14).

9.   As per claim 2, Shorter teaches that wherein the initial transition from the VMM to the one or more VMs is a first time invocation of a VM (abstract; col. 5, lines 36-56).

10.   As per claim 5, Shorter teaches that wherein the instruction executed by the

VMM is VM launch instruction (col. 10, lines 39-55; col. 11, lines 9-15).

11.   As per claim 6, Shorter teaches that wherein identifying the initial transition

comprises determining initial transition is about to occur by logic within a processor

(abstract; col. 5, lines 36-55).

12.   As per claim 7, Shorter teaches that wherein the logic within the processor is

prediction logic (abstract; col. 5, lines 36-55).

13.   As per claim 8, Shorter teaches that wherein utilization of processor-managed

resources includes at least one of allocation of one or more processor-managed

resources, de-allocation of one or more processor-managed resources, verification of

data stored in one or more processor-managed resources, invalidation of data stored in

one or more processor-managed resources, and loading of data into one or more

processor-managed resources (abstract; col. 8, line 67 through col. 9, line 6).

14.   As per claim 9, it is rejected for the same reason as claim 1 above. In addition,

Shorter teaches notifying the processor of the initial transition (col. 14, lines 59-66).

15.   As per claim 11, Shorter teaches that wherein the initial transition is an initial

transfer to the VM (col. 14, lines 47-66).

16.   As per claim 12, Shorter teaches allocating a memory region for a new virtual

machine control structure (VMCS) associated with the VM, and requesting the

processor to activate the new VMCS (col. 11, line 66 through col. 12, lines 22).

17.   As per claim 13, Shorter teaches that wherein requesting the processor to

activate the new VMCS comprises executing a VMCS pointer load instruction including

a pointer to the new VMCS as an operand (col. 12, line 66 through col. 13, line 11).

18.   As per claim 14, Shorter teaches that requesting the processor to initialize the

new VMCS (col. 11, lines 9-18).

19.   As per claim 15, Shorter teaches that wherein requesting the processor to

initialize the new VMCS comprises executing a VMCS clear instruction including the

pointer to the new VMCS as an operand (col. 8, line 59 through col. 9, line 26; col. 13,

lines 12-20).

20.   As per claims 19, 22-23, 26, 30-31, 33-35, 41, 43-44, 50-51, 53, and 56, they are

rejected for the same reason as claims 1-2, 5-9, and 11-15 above.

Allowable Subject Matter

21.   Claims 16-17, 24-25, 37-39, and 45-46 are objected to as being dependent upon

a rejected base claim, but would be allowable if rewritten in independent form including

all of the limitations of the base claim and any intervening claims.

22.   The following claims drafted by the examiner and considered to distinguish

patentably over the art of record in this application, examiner presented to applicant for

consideration:

Claim 1. (Proposed Amendment) A computer-implemented method comprising:

receiving one of a plurality of types of virtual machine (VM) entry instructions

executed by a Virtual Machine Monitor (VMM);

identifying, based on whether the instruction is a VM launch or a VM resume

instruction, that an initial transition from the VMM to one or more virtual machines (VMs)

is about to occur; and

utilizing processor-managed resources associated with the one or more VMs

based on the initial transition by[[.]]:

incrementing a counter of invocations maintained for the one or more

VMs;

determining whether the counter exceeds a predefined number;

allocating the processor-managed resources for the one or more VMs if

the counter equals to the predefined number.

Claim 9. (Proposed Amendment) A computer-implemented method comprising:

determining that an initial transition from a virtual machine monitor (VMM) to a

virtual machine (VM) is about to occur based on invocation information of the VM; ~~and~~

notifying a processor of the initial transition by the VMM executing one of a

plurality of types of VM entry instructions[[.]], wherein the initial transition is an initial

transfer to the VM;

allocating a memory region for a new virtual machine control structure (VMCS)

associated with the VM;

requesting the processor to activate the new VMCS;

requesting the processor to set execution control information, VMM state

information and VM state information in the new VMCS upon requesting the processor

to activate the new VMCS.

Claim 19. (Proposed Amendment) A computer-implemented method

comprising:

identifying execution by a virtual machine monitor (VMM) of one of a plurality of

types of virtual machine (VM) entry instructions, the one of the plurality of types being

associated with an initial transition from the VMM to a VM, the initial transition being

based on invocation information of the VM; and

performing a set of operations according to the initial transition, wherein

performing the set of operations comprise marking a virtual machine control structure

(VMCS) associated with the VM as cleared when receiving a request from the VMM to

initialize the VMCS, determining that the VMCS is in a cleared state, performing a

plurality of validation checks on VMM state information and VM state information,

storing the VMM state information to the VMCS, loading the VM state information into a

processor storage, marking the VMCS as launched, and beginning to execute the VM.

***** Note: the rest of the other independent claims 30, 35, 41, 50, 53, and 56 should
be amended corresponding to the method claims above.**

Response to Arguments

23.   Applicant's arguments filed 04/07/2010 have been fully considered but they are

not persuasive.

24.   In the remark, applicant argued that (1) Robinson fails to teach a plurality of VM

entry instructions, and (2) The combination of Robinson fails to teach "identifying the

type of the instructions", and (3) Robinson and Shorter fails to teach "utilizing processor

managed resources associated with a VM based on the initial transition".

25.   Examiner respectful disagreed with applicant.

      As to point (1), according to MPEP 2111, examiner obligates to give the "phrase

or terms" recited in the claim their broadest reasonable interpretation as it would by one

of an ordinary skill in the art. As such, the phrase "a plurality of VM entry instructions"

would be reasonable for one of an ordinary skill in the art to interpret as "a plurality of

instructions issues from the VM". Robinson teaches a plurality of instructions issues by

the VM (col. 10, lines 36-37; col. 12, line 24). Thus Robinson teaches a plurality of VM

entry instructions.

As to point (2), applicant argument of this point bases on the argument of point

(1), as such, examiner responses to point (2) bases on the explanation for point (1).

Robinson teaches the instructions can be sensitive instruction and privileges instruction

(col. 8, lines 66-67; col. 9, line 1-2), and identifying the type of the instructions (col. 5,

lines 21-27; col. 10, lines 15-59; col. 11, lines 55-60; col. 12, lines 34-60). Thus

Robinson teaches identifying the type of the instructions.

As to point (3), examiner rejected this limitation based on the combination of

Robinson in view of Shorter. Thus, examiner is reminded applicant not to attack

references individually where the rejections are based on combinations of references.

(See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800

F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)). Robinson teaches utilizing processor-

managed resources associated with the one or more VMs based the transition (col. 10,

line 54 through col. 11, line 39). Robinson did not detail to the fact that the transition is

initial transition. However, Shorter teaches that the transition from the VMM to one or

more VMs is an initial transition (col. 14, lines 47-66). Therefore, it would have been

obvious to one of an ordinary skill in the art at the time the invention was made to have

combined the teaching of Robinson and Shorter's system because both systems

suggest transition from a VMM to one or more VMs is occurred in response to a

instruction and Shorter also suggested that the transition is an initial transition would

improve the integrity of Robinson's system by avoiding the assignment of a VM from the

pool to a conversation request involving a program thread that is dependent on the

successful execution of a previous thread (col. 5, lines 10-14). Thus the combination of

Robinson and Shorter teaches utilizing processor managed resources associated with a

VM based on the initial transition.

Conclusion

26.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

27.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to JENNIFER N. TO whose telephone number is (571)272-

7212. The examiner can normally be reached on M-T 6AM- 3:30 PM, F 6AM- 2:30 PM.

28.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

29.   Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lewis A. Bullock, Jr./   /Jennifer N. To/
Supervisory Patent Examiner, Art Unit 2193   Patent Examiner, AU 2195